



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of :

Appl. No. : 09/903,705 Confirmation No. 9187

Applicant : B. G. Goodman et al.

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Examiner : Y. L. Wilson

Docket No. : TUC920000084US1

Title: FAILURE ISOLATION IN A DISTRIBUTED PROCESSING
SYSTEM EMPLOYING RELATIVE LOCATION INFORMATION

2D DECLARATION UNDER 37 C.F.R. Section 1.132

I, **Timothy K. Pierce**, declare and say:

That I am a citizen of the United States of America and I
reside at 6002 W. Bridle Way, Tucson, AZ, USA.

That I am a Firmware Engineer at IBM Corp., in the field of
Data Storage Automation, since May 1979.

That I graduated in 1975 from the ITT Technical Institute,
located in Indianapolis, IN, with a degree of AS in Electronics
Engineering Technology.

That I am knowledgeable in the technology and science of
data storage automation and embedded systems.

A) U.S. Patent Application serial no. 09/903,705

That I have reviewed the present U.S. Patent Application
serial no. 09/903,705, and find that it describes fault detection
and isolation, e.g. "isolating failures in distributed processing
systems comprising processor nodes coupled by multi-drop bus
networks." (page 3, lines 9-11) (emphasis added).

Multi-drop bus networks

"Examples of multi-drop bus networks are a CAN bus network, twin lead Ethernet network, or SCSI network, as are known to those of skill in the art. As is also known to those of skill in the art, the multi-drop bus network comprises any appropriate cabling, connections, interfaces, code, etc. Herein, a multi-drop network refers to any communication network where a break in the communication lines causes one or more subsequent communication failures." (page 6, line 17 - page 7, line 4).

Relative locations

"Each of a plurality of the processor nodes has information determining relative locations of the processor nodes on the multi-drop bus network, and is associated with a local error indicator. The plurality of processor nodes each independently tests access to other processor nodes on the multi-drop bus network. Upon a testing processor node detecting a failure to access at least one of the other processor nodes, the failure detecting processor node determines, from the provided information of relative locations, the processor node having failed access which is closest to the failure detecting processor node. *** At a minimum, at least one of the processor nodes must test access to a plurality of other nodes. The failure detecting processor node stores and subsequently posts, at its associated local error indicator, an identifier of the closest processor node having failed access. A user may inspect the local error indicators and thereby isolate the detected failure, even though the failure may have been intermittent." (page 3, line 12 - page 4, line 8). (emphasis added).

The terms "location" and "relative locations" are defined throughout the specification, and are represented by the illustrations in FIGS. 3, 4, 5 and 6.

For example, referring to FIG. 3, "In one embodiment, processor nodes **110-113** may comprise sequential locations at separate drops of the multi-drop bus network **119**. In an alternative embodiment, common bus **60** comprises a single drop of the multi-drop bus network **119**, or equivalent, and processor nodes **110-113** comprise an equal relative location." (page 17, lines 17-22).

Further, "Table **300** of FIG. **4** represents an example of provided information of relative locations of the processor nodes, comprising a direct sequential numbering of the processor nodes. *** Each of the processor nodes, for example, processor nodes **110-118** of FIG. **1** are depicted, is arranged in sequence, and is assigned a location identifier **305** which is in numerical sequence, from one end of the multi-drop bus network, e.g., network **119**, to the opposite end of the network." (page 23, lines 5-16).

B) U.S. Patent Application Publication US 2003/0095504

That, I have reviewed U.S. Patent Application Publication US 2003/0095504, Ogier, and find that it describes "A protocol for discovering a new neighbor node and detecting the loss of an existing neighbor node in a network ***." (Abstract, lines 1-2).

Neighbor nodes

In Ogier, the title of the publication and throughout the text, reference is made to "neighbor" nodes. Ogier states that the protocol "enables nodes in a mobile ad hoc network or in an internet to quickly detect neighboring nodes with which the nodes have a direct and symmetric link ***". (page 1, paragraph [0004], lines 1-5).

This is a point-to-point relationship, and is not a multi-drop network.

Further, the reference to "Ethernet" is with respect to protocol and is not directed to a "twin lead Ethernet network" of the multi-drop network of the '705 Application.

Specifically, "In the subnet 10, each node 18 can establish connectivity with one or more other nodes 18 through broadcast or point-to-point links. In general, each link is a communication facility or medium over which nodes 18 can communication at the link layer (i.e., the protocol layer ***) Such communication links can be wire-line *** or wireless; thus, nodes 18 are referred to as wireless or wire-line depending upon the type of communication link that the node 18 has to the subnet 10. *** Protocols for establishing link layer links include Ethernet, PPP (Point-to-Point Protocol) links, X.25, Frame Relay, or ATM (asynchronous transfer mode)." (page 3, paragraph [0038], lines 1-15).

Relative locations

Ogier only detects the loss or presence of the "neighbor" nodes and has no awareness of relative locations.

"In general, the neighbor discovery protocol dynamically establishes bidirectional links and detects bi-directional link failures through the periodic transmission of HELLO messages." (page 14, paragraph [0194], lines 4-7).

"Each node 18 maintains a neighbor table, which has an entry for each known neighbor node and stores state information for that neighbor node." (page 15, paragraph [0210], lines 1-3).

There is no relative location information associated with either the HELLO message or the neighbor table, just identifiers of their identity and states.

Further, the discussion by Ogier of the tracking of "neighbors" makes clear that no location or relative location information would be of use.

That the undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issuing thereon.

Further declarant saith not.

Date: 1/12/2005

/s/ Timothy K. Pierce
Timothy K. Pierce